

**UNITED STATES DEPARTMENT OF COMMERCE****Pat nt and Trademark Office**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/652,968 08/31/00 AGARWAL

V. 98-0616.12

MMC2/0828

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8000 S FEDERAL WAY MAIL STOP 525  
BOISE ID 83716

EXAMINER

DIAZ, J

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 08/28/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/652,968

Applicant(s)

AGARWAL, VISHNU K.

Examiner

José R. Díaz

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 43, 44, 76 and 77 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 43, 44, 76 and 77 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

➤ The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

➤ Claims 76 and 77 are rejected under 35 U.S.C. 102(e) as being anticipated by Narwankar et al. (US Patent No. 6,204,203).

Regarding claims 76-77, Narwankar et al. teach a method of forming a metal oxide dielectric film (see columns 1-12) comprising the steps of: layering a first conductive material (206) (see Figure 2a); introducing NH<sub>3</sub> or N<sub>2</sub> gas (see col. 5, lines 1-3); releasing nitrogen from said gas with electromagnetic energy (see columns 5, lines 1-3); and layering a second conductive material (212) (see Figure 2e).

### ***Claim Rejections - 35 USC § 103***

➤ The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

➤ Claims 43-44 rejected under 35 U.S.C. 103(a) as being unpatentable over Narwankar et al. (US Patent No. 6,204,203 B1).

Regarding claims 43-44, Narwankar et al. teach a method of forming a metal oxide dielectric film (see columns 1-12) comprising the steps of: layering a first conductive material (206) (see Figure 2a); introducing  $N_2/H_2$  gas (see col. 5, lines 13-16); releasing nitrogen by thermal annealing (see columns 5, lines 13-37); and layering a second conductive material (212) (see Figure 2e). Furthermore, Narwankar et al. acknowledge that other well known anneal apparatuses such as furnace maybe used to anneal substrate 200 (see col. 5, lines 30-33). Official Notice is taken with respect to the limitation of releasing nitrogen with electromagnetic energy (e.g. ultraviolet light) since it is well known in the art that irradiating ultraviolet radiation in presence of a nitrogen gas such as  $N_2/H_2$  is a conventional annealing step in a nitridation process.

### ***Response to Arguments***

➤ Applicant's arguments with respect to claims 43-44 and 76-77 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

➤ The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamazaki (US Patent 4,717,602) and Kooi (US Patent No. 3,649,886) disclose method for producing nitride layers.

➤ Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

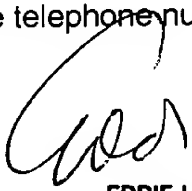
***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R. Díaz whose telephone number is (703) 308-6078. The examiner can normally be reached on 8:00 - 5:00 Monday through Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JRD  
August 22, 2001

  
EDDIE LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800



Sheet: 1 of: 1

FORM: PTO-1449 (REV: 7-80)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE 2 <sup>ND</sup> SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT (37 CFR 1.98(b))	Atty Docket No: 98-0616.12	Serial No: 09/652,968
		Applicant: Vishnu K. Agarwal	
		Filing Date: 8/31/00	Group: 2815

## U.S. PATENT DOCUMENTS

Examiner Initial	Document Number	Date	Name	Class	Subclass	
<i>JP</i>	AA 6,165,802	12/26/00	Cuchiaro et al.	438	3	
<i>JP</i>	AB 5,726,083	03/10/98	Takaishi	438	210	
	AC					
	AD					
	AE					
	AF					
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	AH					
	AI					
	AJ					
	AK					

## FOREIGN PATENT DOCUMENTS

Examiner Initial	Document Number	Date	Country	Class	Subclass	Translation Yes	No
	AL					<input type="checkbox"/>	<input type="checkbox"/>
	AM					<input type="checkbox"/>	<input type="checkbox"/>
	AN					<input type="checkbox"/>	<input type="checkbox"/>
	AO					<input type="checkbox"/>	<input type="checkbox"/>
	AP					<input type="checkbox"/>	<input type="checkbox"/>
	AQ					<input type="checkbox"/>	<input type="checkbox"/>

Initial

## OTHER ART (including author, title, date, pertinent pages, etc.)

	AR		
	AS		
	AT		

Examiner: <i>[Signature]</i>	Date Considered: 8/21/01
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

RECEIVED  
JUN 5 2001  
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